

# Some Questions On Growth And Decay

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# Gross Domestic Product

- The monetary value of all the finished goods and services produced within a country's borders in a specific time period, though GDP is usually calculated on an annual basis. It includes all of private and public consumption, government outlay, investments and export less imports that occur within a defined territory.

- $$\text{GDP} = \underline{\text{C}} + \underline{\text{G}} + \underline{\text{I}} + \underline{\text{NX}}$$

- ‘C’ Is equal to all private consumption or consumer spending, in a nation’s economy.
- ‘G’ Is the sum of Government pending.
- ‘I’ Is the sum of all the country’s businesses spending on capital
- ‘NX’ Is the nation’s total net exports , calculated as total exports minus total imports. (**NX = Exports – Imports**)



- GDP is commonly used as an indicator of the Economic health of a country , as well as to gauge a country's standard of living. Critics of using GDP as an Economic measure say the statistic does not take into account the underground economy – transactions that , for whatever reason, are not reported to the government. Other say that GDP is not intended to gauge material well-being , but serves as a measure of a nation's productivity, which is unrelated.



- The Annual GDP of a country is the value of all goods and services produced in a country in a year.

During the period 2002-2003, the GDP of China was approx. \$956.6 billion at a rate of 8.5% per three quarters, measured in 2003 dollars .

**Assuming this growth continues, what would China's GDP be in the year 2001-2002 per four quarters ?**

- During the period 2002-2003, the GDP of USA was approx. \$ 11,246.3 billion at a rate of 4.2% per year and the GDP of China was approx. \$976.6 billion at a rate of 8.5% per year , measured in 2003 dollars . The GDP of USA and China can be modelled by  $A(t) = 11246.3 \exp(0.041t)$  and  $C(t) = 76.6 \exp(0.08t)$ , respectively. According to these models China's GDP will be more than of USA after 63 years Or in 2066.



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- $Y = a(1-r)^t$

- China's GDP in the year 2001- 2002 per four Quarters would be \$ 899.83 billion.

- 001
- Q. A Fungus reproduces 1,000,000 times in 1 minute under ideal conditions. Find the constant **k** for the fungus under ideal conditions.
  - Ans : **k = 13.82**



- Q. One Cigarette contains 11 milligrams of nicotine, which decays continuously at a fixed rate. Half of this nicotine is eliminated in 11.2 hrs . At what rate is nicotine eliminated in 1 hr ?
- Ans:  $r = 6\%$

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- Q. Barbara found a rat in her house. The weaning age for rats is 21 days and the litter size is 6-12. At the most, how many rats will be in three months ?
  - Ans:  $y = 2197$



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Thank You !

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